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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,800	11/24/2003	Todd W. Johnson	066042-9537-00	5088

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EXAMINER	
GRANT, ROBERT J	

ART UNIT	PAPER NUMBER
2838	

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/721,800	JOHNSON ET AL.	
	Examiner	Art Unit	
	Robert Grant	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11,13-19 and 21-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,13-19 and 21-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 11-10-05
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 11, 19, and 27-28 are rejected under 35 U.S.C. 103(b) as being anticipated by Bailey Jr. et al. (US 6,329,788) in view of Santana (US 6,924,620).

As to Claim 11, Bailey discloses a battery pack for powering a hand held power tool (column 3, lines 2-5), the battery pack comprising: a housing connectable to and supportable by the hand held power tool (figure 3, element 22); and a plurality of battery cells supported by the housing, the battery cells having a combined nominal voltage of approximately 28-volts (Column 2, lines 7-11). Bailey does not expressly disclose that the battery cells have a lithium-based chemistry. Santana discloses a power tool battery pack that has a lithium based chemistry (Column 2, lines 16-18). It would have been obvious to one having ordinary skill in the art at the time of this invention to use the lithium based chemistry as taught by Santana with the hand held power tool of Bailey in order to have a higher energy density.

As to Claim 19, Bailey discloses an electrical combination comprising: a handheld power tool (Column 3, line 3-5)); and a battery pack including a housing connectable to and supportable by the hand held power tool (Figure 2), and a plurality of battery cells supported by the housing, the battery cells having a combined nominal voltage of approximately 28-volts (Column 3, lines 7-11). Bailey does not expressly disclose that the battery cells have a lithium-based chemistry. Santana discloses a power tool battery pack that has a lithium based chemistry (Column 2, lines 16-18). It would have been obvious to one having ordinary skill in the art at the time of this invention to use the lithium based chemistry as taught by Santana with the hand held power tool of Bailey in order to have a higher energy density.

As to Claim 27, Bailey in view of Santana disclose the electrical combination as set forth in claim 19 wherein the hand held power tool includes a driver drill, the driver-drill including a driver-drill housing connectable with the housing of the battery pack and operable to support the battery pack when connected (figure 15), and a motor supported by the driver-drill housing and operable to drive a drill bit (seen and implied in figure 15), the plurality of battery cells being electrically connectable to the motor to selectively operate the motor (figure 15, element 16).

As to Claim 28, Bailey in view of Santana disclose the electrical combination as set forth in claim 19 wherein the hand held power tool includes a circular saw, the circular saw including a saw housing selectively connectable with the housing of the

battery pack and operable to support the battery pack when connected (figure 1), and a motor supported by the saw housing and operable to drive a saw blade (seen and implied in figure 1), the plurality of battery cells being electrically connectable to the motor to selectively operate the motor (figure 1, element 16).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey in view of Pascual et al. (US 5,710,504).

As to Claim 1 Bailey discloses a battery pack for use with a hand held power tool (Figure 2, element 24), the battery pack including a housing (Element 22), a first battery cell supported by the housing and having a voltage (element 24), the battery pack being connectable to a hand held power tool and being operable to supply power to operate the hand held power tool (Column 3, lines 2-5). Bailey does not expressly disclose a second battery or a method of balancing the batteries. Pascual discloses a second battery cell supported by the housing and having a voltage, the first battery cell and the second battery cell being arranged in series (Figure 1), said method

comprising the act of: discharging one of the first battery cell and the second battery cell until the voltage of the one of the first battery cell and the second battery cell is substantially equal to the voltage of the other of the first battery cell and the second battery cell (Column 3, lines 43-50). It would have been obvious to one having ordinary skill in the art at the time of this invention to combine the teachings of Pascual with the battery pack of Bailey in order to improve battery life (Pascual Column 3, lines 26-27).

As to Claim 7, Bailey in view of Pascual disclose the method as set forth in claim 1 wherein the battery pack further includes at least one terminal connected to the first cell and to the second cell and operable to connect the battery pack to the power tool (Figure 1, element Ba)), and wherein said method further comprises the act of discharging the first cell and the second cell to supply power through the terminal to power the power tool (Bailey: Figure 1 and Figure 2).

As to Claim 8, Bailey in view of Pascual disclose the method as set forth in claim 1 and further comprising the act of charging the first cell and the second cell (Bailey: figure 12).

As to Claim 9, Bailey in view of Pascual disclose the method as set forth in claim 8 wherein the battery pack further includes at least one terminal connected to the first cell and to the second cell (Pascual: Figure 1, Most positive point at Ba, and the

terminal is electrically connected to the second cell Bb through Ba) and operable to connect the battery pack to a battery charger (Figure 1, element R), the battery charger being connectable to a power source and being operable to supply power to the battery pack, and wherein said charging act includes the act of supplying power from the battery charger to the battery pack (Bailey: Column 6, lines 3-13).

As to Claim 10, Bailey in view of Pascual disclose the method as set forth in claim 1 and further disclose a third cell (Pascual figure 1, element Bc) where in the method further comprises the act of discharging the third cell until the voltage of the third cell is substantially equal to the voltage of the other of the first and second cell (Figure 1).

4. Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey in view of Pascual in further view of Choo (US 6,452,362).

As to Claim 2, Bailey in view of Pascual disclose the method as set forth in claim 1. Neither expressly discloses the act of measuring the voltage. Choo discloses the acts of: measuring the voltage of the first cell (Choo: Figure 1, element 70); and measuring the voltage of the second cell(Choo: Figure 1, element 70); and wherein the discharging act includes discharging the one of the first cell and the second cell having a higher voltage until the voltage of the one of the first cell and the second cell is substantially equal to the voltage of the other of the first cell and the second cell (Choo: Figure 3, elements s125, s130, s135, and s140). It would have been obvious to one

having ordinary skill in the art at the time of this invention to include a sensor in the design of Pascual in order to measure the voltages of the cells so as to not require constant switching of the capacitors.

As to Claim 3, Bailey in view of Pascual in further view of Choo disclose the method as set forth in claim 2, and Choo further discloses wherein one of the measuring acts provides the discharging act (figure 2, element 70).

As to Claim 4, Bailey in view of Pascual in further view of Choo disclose the method as set forth in claim 3, and Choo further discloses wherein the measuring act associated with the one of the first cell and the second cell provides the discharging act (figure 3, S125 and s130).

As to Claim 5, Bailey in view of Pascual in further view of Choo disclose the method as set forth in claim 2, Choo further discloses wherein the battery pack further includes a controller connected to the first cell and to the second cell, and wherein the measuring acts include the act of determining the voltage with the controller (figure 1, element 70).

As to Claim 6, Bailey in view of Pascual in further view of Choo disclose the method as set forth in claim 5, and Choo further comprising the act of, after the

measuring acts, determining, with the controller, on which of the first cell and the second cell to perform the discharging act (figure 3, S130 and S140).

5. Claim13-17 and 21-25 and 38-44 rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey in view of Santana in view of Nakai et al. (US 6,509,114).

As to Claim 38, Bailey discloses a battery pack for powering one of multiple hand held power tools (figure 2), the battery pack comprising: a housing connectable to and supportable by the hand held power tool (figure 1, and figure 15). Bailey does not expressly disclose the batteries are lithium based, or that they have approximately 3.0 ampere-hour capacity. Santana discloses battery cells having a lithium based chemistry (Column 2, lines 16-18). Nakai discloses having a combined ampere-hour capacity of approximately 3.0 ampere-hours (Column 14, lines 34-35).. It would have been obvious to a person having ordinary skill in the art at the time of this invention to use Nakai's lithium batteries in the battery pack of Bailey in order to provide higher power and capacity to the battery pack.

As to Claim 13,21, and 39, Nakai further discloses the battery pack as set forth in claim 12, 20, and 38, respectively, wherein the battery cells have a lithium-manganese chemistry (Column 13, lines 32-35).

As to Claim 14,22, and 40, Nakai discloses the battery pack as set forth in claim 12,20, and 38, respectively, wherein the battery cells have a spinal chemistry (Column 13, lines 32-35).

As to Claim 15, 23 and 41, all the limitations as set forth in claim 11, 19, and 38, respectively, have been meet. It would have been an obvious matter of design choice to use seven battery cells, since applicant has not disclosed that using seven battery cells solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any number of cells as long as the output of the cells meets the requirements of the device.

As to Claim 16, 24, and 42, Bailey discloses all the limitations set forth in claim 11,19, and 38, respectively, but does not expressly disclose the battery cell voltage of approximately 4.2-volts. Nakai discloses the battery cell has a nominal voltage of approximately 4.2-volts (Column 10, line 62). It would have been obvious to use the battery cells of Nakai with the device of Bailey in order to have high power and capacity cells.

As to Claim 43, Bailey in view of Santana in further view of Nakai disclose all the limitations of claim 38. Bailey, Santana, and Nakai do not expressly disclose the average discharge current of 20 amps. Bhagwat teaches that hand held power tool motor us approximately 20 amps (Column 9, lines 1-3). Therefore it would have been obvious to a person having ordinary skill it the art to create a battery pack for a power

tool where in the average discharge current is sufficient to power the motor of the power tool.

As to Claim 17, 25, and 44, Bailey discloses the battery pack as set forth in claim 11, 19, and 29, respectively, but does not expressly disclose wherein each of the plurality of battery cells has ampere-hour capacity of approximately 3.0 ampere-hours. Nakai disclose a battery cell having approximately 3.0 ampere-hours of capacity (Coulmn 14, lines 34-35). It would have been obvious to use the battery cells of Nakai with the device of Bailey in order to have high power and capacity cells.

6. Claims 18 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey in view of Santana in view of Bhagwat et al (US 4,893,067).

As to Claim 18 and 26, Bailey discloses all the limitations of Claim 11 and 19, respectively, Bailey does not expressly disclose an average discharge current of approximately 20 amps. Bhagwat teaches that motor of typical hand held power tools use between 10-20 amps (Column 9, lines 1-3). It would have been obvious to a person having ordinary skill in the art and take Bhagwat's teaching and design the battery pack so it can supply enough current to power hand held power tools.

7. Claims 29-37 and 43, 45-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey in view of Santana in view of Bhagwat in view of Nakai.

As to Claim 29, Bailey discloses an electrical combination comprising: a hand held power tool (figure 15) and a power tool battery pack operable to supply power to a hand held power tool, the battery pack including a plurality of battery cells (figure 2). Bailey does not expressly disclose the power tools capable of producing an average current draw of approximately 20-amps and the battery cells having a lithium-based chemistry. Bhagwat discloses that hand held power tool motors draw around 20 amps (Coulmn 9, lines 1-3). Santana discloses that lithium based battery pack (column 2, lines 16-18) for use in a hand held device. Nakai discloses potential hazards with high power and capacity cells and a solution to prevent possible hazards of using lithium based cells (Column 2, lines 64-67 and Column 3, lines 1-3 and 41-62) and provides motivation for using a lithium to provide a higher energy density. It would have been obvious to a person having ordinary skill in the art to combine the teachings of Bhagwat, Santana, and Nakia, and create a battery pack with higher energy density that is made up of cylindrical lithium based cells for a device that draws approximately 20 amps.

As to Claim 45, Bailey discloses a battery pack for powering one of multiple hand held power tools (column 3, lines 2-5), the battery pack comprising: a housing connectable to and supportable by the hand held power tool (figure 1, and figure 15, element 16). Bailey does not expressly disclose wherein the average discharge current of the battery pack is approximately 20 amps, or that the batteries are lithium based. Santana discloses a battery pack for a hand held power tool with a lithium based chemistry (column 2, lines 27-34). Bhagwat teaches that hand held power tool

motor us approximately 20 amps (Column 9, lines 1-3). Nakai discloses potential hazards with high power and capacity cells and a solution to prevent possible hazards of using lithium based cells (Column 2, lines 64-67 and Column 3, lines 1-3 and 41-62) and provides motivation for using a lithium to provide a higher energy density. It would have been obvious to a person having ordinary skill it the art at the time of this invention to combine the teachings of Santana, and use a lithium based battery for its higher capacity and power, use the teachings of Nakai and make the cell cylindrical shaped so as to prevent possible damages, and take the teaching of Bhagwat and design the battery pack such that it has an average discharge current of approximately 20-amps so that it is capable of sufficiently powering the power tools motor.

As to Claim 30 and 46, Nakai further discloses the electrical combination as set forth in claim 29 and 45, respectively, wherein the battery cells have a lithium-manganese chemistry (Column 13, lines 32-35).

As to Claim 31 and 47, Nakai further discloses the electrical combination as set forth in claim 29 and 45, respectively, wherein the battery cells have a lithium-manganese spinel chemistry (Column 13, lines 32-35).

As to Claim 32 and 48, all the limitations as set forth in claim 29 and 45, respectively, have been meet. It would have been obvious to one having ordinary skill in the art that the number of battery cells in a battery pack can be adjusted in order to meet the voltage, current, and capacity requirements of the battery pack. Since applicant has not disclosed that using seven battery cells solves any stated problem or

is for any particular purpose and it appears that the invention would perform equally well with any number of cells as long as the output of the cells meets the requirements of the device.

As to Claim 33 and 49, Nakai further disclose the electrical combination as set forth in claim 29 and 45, respectively, wherein each of the plurality of battery cells has a nominal voltage of approximately 4.2-volts (Column 10, line 62).

As to Claim 34 and 50, Nakai further discloses the electrical combination as set forth in claim 29 and 45, respectively, wherein each of the plurality of battery cells has ampere-hour capacity of approximately 3.0 ampere-hours (Column 14, lines 34-35).

As to Claim 35, Bailey further discloses the electrical combination as set forth in claim 29 wherein the hand held power tool includes a driver-drill including a driver-drill housing connectable with the housing of the battery pack and operable to support the battery pack when connected (figure 15), and a motor supported by the driver-drill housing and operable to drive a drill bit (seen and implied in figure 15), the plurality of battery cells being electrically connectable to the motor to selectively operate the motor (figure 15, element 16).

As to Claim 36, Bailey further discloses the electrical combination as set forth in claim 29 wherein the hand held power tool includes a circular saw, the circular saw

includes a saw housing connectable with the housing of the battery pack and operable to support the battery pack when connected (figure 1), and a motor supported by the saw housing and operable to drive a saw blade (seen and implied in figure 1), the plurality of battery cells being electrically connectable to the motor to selectively operate the motor (figure 1, element 16).

As to Claim 37, Bailey further discloses the electrical combination as set forth in claim 29 wherein the battery pack includes a housing selectively connectable to and supportable by the hand held power tool (figure 2), and wherein the plurality of battery cells have a combined nominal voltage of approximately 28-volts (Column 3, lines 7-11).

As to Claim 51, which is dependent upon claim 45, Bailey further disclose wherein the plurality of battery cells have a combined nominal voltage of approximately 28-volts (Column 3, lines 7-11).

Response to Arguments

8. Applicant's arguments with respect to claim1-51 have been considered but are moot in view of the new ground(s) of rejection.

9. As for the arguments concerning the motivation for combining, the motivation for combining can be found above in the claim rejection.

10. As for the arguments that Nakai teaches away from using lithium based batteries in hand held devices. The examiner would like to note that Nakai just distinguishes

between the sizes. Nakai is not relied upon for the use of the size of the cells that he focuses on, but rather on ways to over come potential problems that can arise.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Grant whose telephone number is 571-272-2727. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RG

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